

An Instrument for the Measurement of the Resolving Power and the Light Output of Fluorescing Screens (PR) 307/2-21-1-7/21

power of a screen up to a maximum of 500 lines per mm. The screen to be investigated is observed through an optical microscope by a 20-40 fold magnification. The method devised by A. A. Lebedev is applied, by which a grating projected on the screen is investigated. The light output is measured with a photocell and is given in candles per watt. A description follows of the mechanical construction of the instrument, of measuring devices and source of current. The authors thank their collaborators Yu. N. Kushnir, V. I. Milyutin, and Ye. S. Ratner. There are 4 figures and 1 Soviet reference.

card 2/2

AUTHORS: Fetisov, D. V., Spektor, F. U., Milyutin, SOV/48-23-6-28
V. I., Raspletin, K. K.

TITLE: On the Resolving Power of Electrostatic Electronic Microscopes
(O razreshayushchey sposobnosti elektrostaticheskogo elektronno-
go mikroskopa)

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1959,
Vol 23, Nr 6, pp 690 - 693 (USSR)

ABSTRACT: By the influence of aberration, caused by the asymmetry of
the optical system, the chromatic aberration and other factors,
the theoretically attainable resolving power of electrostatic
electronic microscopes, which would be limited solely by
electron diffraction and spherical aberration is not attained.
In the present paper the influence exercised by the asymmetry
of the field of electrostatic lenses and of the entire optical
system, the influence of the variation of the spherical aberration
of the lenses, and the effects of the pulsation of the acceleration
voltage of the instrument are investigated. Field asymmetry
depends on the geometric dimensions of the individual electrodes
of the lenses, and, first of all, the connection between the
oval electrodes of the lenses and resolving power is investigated.

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On the Resolving Power of Electrostatic Electronic
Microscopes

SOV/48-23-6-6/28

Results obtained by measurements show an increase in resolution with a reduction of the oval shape of the lens electrodes. In a similar manner the influence exercised by the aberration from the axial arrangement and the results obtained are shown by four diagrams (Figs 2,3). A stigmatizer is then briefly described, which is partly able to eliminate these errors. For the investigation of the spherical aberration of an electrostatic objective, in which the focal plane of the lens is outside the range of the field, a schematical drawing is first given, after which a constant of aberration is introduced. This constant depends on the geometric dimensions of the middle electrode and its potential. Various adjustments are investigated, and the results obtained are shown by a table. The most satisfactory results were obtained when the focal plane was approached as far as possible to the lens. Finally, the influence exercised by the pulsation of the direct current was investigated at various amplitudes exercised by them upon resolving power. There are 5 figures, 1 table, and 3 references, 1 of which is Soviet.

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24,3500

22176

S/048/61/025/004/025/048
B102/B212

AUTHORS: Pochtarev, B. I., Raspletin, K. K., and Fetisov, D. V.

TITLE: A device for measuring the luminescence parameters of
fluorescent screens

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, v. 25,
no. 4, 1961, 512-514

TEXT: This paper has been presented at the 9th Conference on Luminescence
(Crystal Phosphors) which took place in Kiev from June 20 to 25, 1960. It
offers a brief description of the device MPC (PRS) developed by the authors
for the investigation of the main characteristics of cathodoluminophores and
fluorescent screens. The latest model of the PRS device is a universal
electron-optical apparatus using a system of electrostatic lenses. The
device makes it possible to investigate the resolution, the light yield,
the composition of the luminescence spectrum, and the purity of the sur-
face if exposed to an electron beam. The maximum resolution of the device
is found at 700 lines/mm, the beam voltage can be varied from 0-30 kv and
the beam current from $2 \cdot 10^{-8}$ - $2 \cdot 10^{-6}$ a. The excitation current may be in-

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A device for ...

creased up to $1 \cdot 10^{-5}$ a. The spot diameter on the screen (luminophore) is constant and measures 20 mm. The operating pressure in the chamber is $(1-3) \cdot 10^{-4}$ mm Hg. 8-30 screens or 20 cuvettes with luminophore powder may be placed into the measuring chamber. The light yield of yellow-green or blue screens (luminophores) is measured with selenium and antimony-cesium photocells, respectively. The principle, design, and measuring operations of this device have been described earlier by the authors (Izv. AN SSSR, Ser. fiz. 23, No. 4, 462, 466 (1959)). Here, the measurement of the spectral composition of radiations is briefly described. This measurement is very easy to do in transmitted and also reflected radiation since the luminescence spectrum is nearly independent to obtain spectral curves, and a spectrograph or a monochromator is utilized. Fig. 2 shows the revolving optical system which is used to measure luminescence spectra. The authors thank Yu. M. Kushnir and M. A. Meyerov for advice, assistance, and interest. There are 2 figures and 1 Soviet-bloc reference.

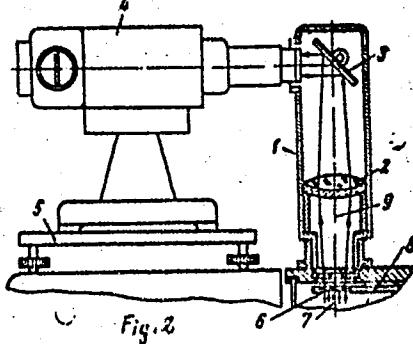
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Legend to Fig. 2: 1) Tube; 2) lens;
3) mirror; 4) spectrometer;
5) support; 6) screen;
7) electron beam; 8) camera;
9) light path.



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S/048/61/025/006/008/010
B117/B212

AUTHORS: Kabanov, A.N. Kushnir, Yu.M., and Fetisov, D.V.

TITLE: Objective recording method of energy spectra of electrons
for an electrostatic analyzer

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya, v. 25,
no. 6, 1961, 748-751

TEXT: The present paper has been presented at the 3rd All-Union Conference
on Electron Microscopy, held in Leningrad from October 24 to 29, 1960.
The authors have applied the method suggested by Möllenstedt (Ref.2:
Möllenstedt G., Dietrich W., Optik, 12, 246 (1955)) for a 75-kv analyzer.
For photographic recording of spectra the dispersing element of the
analyzer consists of a slit and an analytical lens (Fig. 1 a). The prin-
ciple of a device, where optical properties of the analytical lens and
also the resolution and the intensity of the slit image remain constant,
consists in introducing a second slit (Fig. 1b and B). It is located
somewhat below the analytical lens, and is so far away from the optical
axis that only those electrons will pass it, whose energies correspond to

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Objective recording method ...

the optimum conditions (R_{opt}). Changing the potential of the central electrode of the analytical lens will keep the quantity R_{opt} constant. The image of the slit can only change its intensity. At the screen it remains unchanged. By adjusting optimum conditions for elastically scattered electrons and by continuous change of the central electrode potential, the number of electrons passing through the second slit is changed and it is possible to obtain easily information on the energy losses of the electrons and on the intensity of the spectral lines. The device can be simplified when using a semi-transparent fluorescent screen, a photo-electron multiplier and an automatic electronic potentiometer of the type 300-0.9 (EPP-0.9). Fig. 2 shows a diagram of the dispersing element of the analyzer, the electron gun, and also the device for objective recording of electron energy spectra. Both slits are adjustable. The lower slit may be opened to a width that is sufficient to let the whole spectrum through. Control pictures of the spectrum may be taken with the camera without disturbing the vacuum. A movable photographic plate holder makes it possible to use both recording methods. After the electron beam has passed through the second slit, it hits the semi-transparent fluorescent screen with a short afterglow. The color of the afterglow and the spectral maximum correspond

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Objective recording methods ...

to the sensitivity of the photocathode of the $\frac{1}{2}3Y$ (FEU) multiplier, of type 1C (1S). Organic glass was used as light conductor. The signal of the FEU multiplier is amplified by a d-c amplifier γ (U) and is fed to the input of the balancing cathode follower $K\bar{U}$ (KP). This is used to coordinate the amplifier resistor and that of the potentiometer EPP-0.9. The change of the central electrode potential of the analytical lens was done with a ΩJ (PL) potentiometer. The total resistance of the potentiometer was 20 kilohms and its linearity 0.1%. The potentiometer was fed from a battery B_2 (B_2) of type 5AC (BAS) having a voltage of 150 v. The high-voltage divider R_2 made it possible to obtain the wanted conditions for the analytical lens, according to the current used for the electron beam. The battery (B_1), which was connected to the electron gun circuit, was used for recording standards for the energy spectra. A change of the resistance R_1 made it possible to adjust the current of the electron beam as necessary. The resolution of the analyzer was $\sim 140,000 : 1$ and the dispersion 0.2 mm ev $^{-1}$. Another article will report on the application of the analyzer with a device for objective estimation of the lines of energy spectra. There are 3 figures and 5 references: 3 Soviet-bloc and 2 non-Soviet-bloc.

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30

KUSHNIR, Yu.M.; FETISOV, D.V.; RASPLETIN, K.K.; POCHTAREV, B.I.; SPEKTOR, F.U.;
KABANOV, A.N.; ANISIMOV, V.F.

Scanning electron microscope, an X-ray microanalyzer. Izv.AN SSSR.
Ser.fiz. 25 no.6:695-700 Je '61. (MIRA 14:6)
(X-ray microscope)

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S/032/61/027/012/012/015
B104/B102

AUTHORS: Kushnir, Yu. M., Fetisov, D. V., Rozenfel'd, L. B., and Rozenfel'd, A. M.

TITLE: Domestic electron microscopes for direct examination of compact objects

PERIODICAL: Zavodskaya laboratoriya, v. 27, no. 12, 1961, 1528 - 1535

TEXT: The first part of this review paper deals with field-emission microscopes. A microscope of A. M. Rozenfel'd and P. V. Zaytsev (*Izvestiya AN SSSR, ser. fizich.* (in print)) and designed for testing thermionic and secondary-electron emitters is described. It differs from the ЭЭМ-75(EEM-75) microscope in its vacuum system (10^{-6} mm Hg) and magnetic objective lens (Fig. 1). 40 kv can be applied between the cathode and anode (distance 2.5 mm) of the objective lens. The resolution can thus be increased to 350 - 400 Å. The objective lens permits the use of both electron and ion sources (Fig. 3). Air, hydrogen, helium, argon, and other ions can be used for exciting secondary electron emission.
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Domestic electron microscopes for ...

In this case, the resolution is approximately 2000 Å. For the ЄЕМ-50 (EEM-50) microscope, an electrostatic immersion objective is being developed, which is designed to stretch and heat the specimen during examination. It can also be used for taking motion pictures of rapid processes. A field-emission microscope with electrostatic optics, developed by B. I. Popov and A. V. Druzhinin (2-e Soveshchaniye po elektronnoy mikroskopii, Nauchno-tehnicheskoye obshchestvo im. A. S. Popov (annotatsii dokladov), M. (1958); Radiotekhnika i elektronika, no. 8 (1958)), is mentioned. The second part of this paper deals with reflecting electron microscopes which are known to operate like optical reflecting microscopes and have no high resolution owing to the large scattering of electron energies after reflection. At present, neither Russia nor other countries have such industrial electron microscopes. Some Japanese, British, and Russian transmission electron microscopes have attachments for observations in reflected light (УЕМ-100; УЕМБ-100(UEMB-100); УЕМВ-100 (UEMV-100)). The third part deals with scanning microscopes whose resolution reaches 500 - 200 Å when operating with secondary electrons. When operating with X-rays, the resolvable distance is

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Domestic electron microscopes for ...

approximately 1 Å. A resolution of approximately 800 Å was obtained for some objects examined under Soviet scanning microscopes with X-ray analyzers. These microscopes play an important role in the investigation of p-n junctions. The direct X-ray image was studied in previous experiments. In this case, the electrode probe scans a certain part of the specimen surface (0.3×0.3 mm). 50 pictures per sec can be developed with 35 AG2 (35LKB2B) kinescope. Microchemical analyses with scanning microscopes are also described. The fourth part of the paper deals with reflection electron microscopes, in which accelerated electrons are slowed down and reflected in the microfield of the specimen. The image is determined by this microfield. The theoretical resolution of these microscopes is approximately 1000 Å. Domestic microscopes differ from foreign types in that the images are produced in the vacuum part, whereby the quality of microphotographs is essentially improved. Magnification is about 2000. There are 10 figures and 25 references: 16 Soviet and 9 non-Soviet. The three most recent references to English-language publications read as follows: D. A. Melford a. P. Duncumb. Metallurgia, 59, 205 (1960); P. Duncumb. Brit. J. Appl. Phys., 10, 420 (1959); 11, 169

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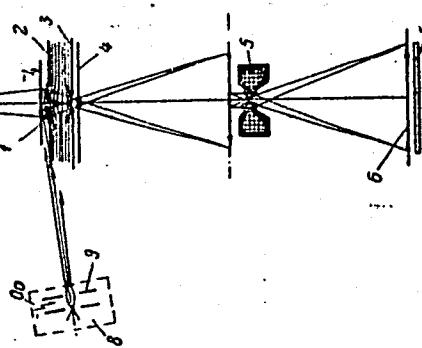
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Domestic electron microscopes for ...

(1960).

Fig. 1. Emission microscope for examination of thermionic and secondary-electron emitters.

Legend: (1) Cathode of immersion objective; (2) focusing electrode; (3) anode; (4) diaphragm, (5) projection lens; (6) screen of finite representation; (7) photoplate; (8) and (9) cathode and anode of source of primary electrons.



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Domestic electron microscopes for ...

Fig. 2. Magnetic objective for emission microscope.

Legend: (1) cathode; (2) anode; (3) upper pole shoe; (4) ring insertion of non-magnetic material; (5) lower pole shoe; (6) diaphragm.

Fig. 3. Objective with ion source.

Legend: (1) and (2) anode and cathode of ion source; (3) and (4) cathode and anode of objective; (5) pole shoes of objective.

Fig. 2

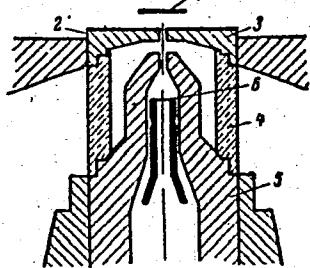
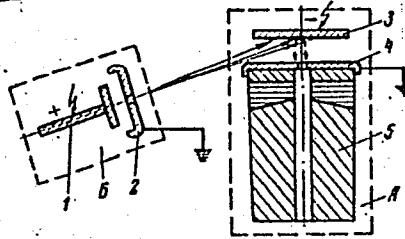


Fig. 3



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S/048/63/027/003/020/025
B106/B238

AUTHORS: Kushnir, Yu. M., Fetisov, D. V., Raspletin, K. K.,
Pochtarev, B. I., Spektor, F. U., Gurova, R. P., Tokarev,
I. D., Osipov, V. N., and Pavlov, V. A.

TITLE: A modified raster microscope - local X-ray microanalyzer
and its use

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya, v. 27,
no. 3, 1963, 415-419

TEXT: A modified scanning electron microscope - local X-ray microanalyzer
is described briefly, and a few data are on its use in investigating
metals, minerals and semiconductors presented. The crystal X-ray
spectrometer of the apparatus makes it possible to analyze the radiation
of elements from magnesium to uranium. The dead time of the counter tube
does not permit of obtaining qualitative X-ray patterns when the
scanning velocities are high. The authors therefore developed a system of
slow scanning which provides a scanning field with a 1 : 1 format and a
resolution of 200 - 300 lines at 1 frame/min. The area of the scanning
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A modified raster microscope - local ...

field on the object amounts to 0.04 to 0.25 mm^2 . Under these conditions, the dead time of the counter tube imposes practically no limit on the resolution of the characteristic X-rays patterns. A block of slow sweeps serves for observing the images visually, and is provided with a moving film camera with a large afterglow. A second moving film camera, synchronized with the first, records the images photographically; it focuses the spot sharply and has a high accelerating voltage. The characteristic X-ray pattern were also recorded using an NaI-crystal scintillation counter which worked satisfactorily at wavelengths below 1.5 \AA . The sharpness and contrast of the images obtained due to the secondary electrons were increased by a special device for correcting the frequency characteristics of the video amplifier block. This was done by filtering out signals between 25 and 150 cps and those near to 5 Mcs. The improvements of the basic elements of the X-ray microanalyzer made it possible to obtain characteristic X-rays patterns for the first time, and to undertake comparative studies of a few objects on the basis of the microphotographs. Besides making it possible to obtain reflected characteristic electron beam and X-ray patterns for macroscopic surfaces, the instrument also permits the visualization of p - n transitions in

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A modified raster microscope - local ... B106/B238

semiconductors. The band width of the barrier layer depends on the applied voltage and can easily be determined. The authors are now working to develop a raster microscope - local X-ray analyzer as an industrial model; this will feature magnetic optics, thus making it possible to achieve high resolution and a much higher current density in the electron probe. There are 5 figures.

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KUSHNIR, Yu.M.; FETISOV, D.V.; DER-SHVARTS, G.V.; POCHTAREV, B.I.; TOKAREV, P.D.; RASPLETIN, K.K.; SPEKTOR, F.U.; GUROVA, R.P.; POSTNIKOV, Ye.B.; OSIPOV, V.N.; PAVLOV, V.A.; POGUDINA, M.V.

Combined scanning electron microscope and X-ray microanalyzer with magnetic electron optics. Izv. AN SSSR. Ser. fiz. 27 no.9:
1166-1172 S '63. (MIRA 16:9)
(Electron microscope) (X-ray spectroscopy)

KUSHNIR, Yu.M.; FETISOV, D.V.; DER-SHVARTS, G.V.; POCHTAREV, B.I.; TOKAREV, P.D.;
RASPLETIN, K.K.; GUROVA, R.P.; POSTNIKOV, Ye.B.

The REMP-1 scanning-type electronic microprobe instrument. Zav.lab. 30
no.12:1510-1512 '64. (MIRA 18:1)

Schev, B. N.; Der-Shvarts, G. V.; Fetisov, D. V.; Shchukin, V. K.

TABLE: Microanalyzer for thin specimens

SOURCE: Pribory i tekhnika eksperimenta, no. 1, 1965, 189-191

TOPIC TAGS: microanalyzer, structural analysis

ABSTRACT: An x-ray microanalyzer (MA) intended for structural analyses of small areas of thin (2000 \AA) foils is described. The MA is built into a desk-type electron microscope ("Tesla," Czechoslovakia) whose resolution is up to 100-30,000; the picture can be observed on a 60×60 -mm screen. The sensitivity can be evaluated by the background noise level.

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ACCESSION NR: AP5007055

ASSOCIATION: none

SUBMITTED: 05JUN64

ENCL: 00

SUB CODE: LE, OP

NO REF SOV: 006

OTHER: 002

L 36554-66 EWT(1)

ACC NR: AP6015760 (A,N) SOURCE CODE: UR/0048/66/030/005/0764/0765

AUTHOR: Kabanov, A. N.; Fetisov, D. V.; Tokarev, P. D.; Glushkova, E. D.; Kushnir, Yu. M.

ORG: none

TITLE: The MESEM-A-40 electrostatic electron microscope energy analyzer /Report, Fifth All-Union Conference on Electron Microscopy held in Sumy 6-8 July 1965/

SOURCE: AN SSSR. Izvestiya, Seriya fizicheskaya, v. 30, no. 5, 1966, 764-765

TOPIC TAGS: electron microscope, electron diffraction, electron scattering, inelastic scattering, electron energy

ABSTRACT: A type MESEM-40 electrostatic electron microscope, described elsewhere by V.I.Milyutin, D.V.Fetisov, K.K.Raspletin, F.U.Spektor, and B.I.Pochtarev (Izv. AN SSSR. Ser. fiz., 23, 454 (1959)), has been modified for use as an electrostatic energy analyzer for investigation of inelastic scattering of electrons. The modified instrument can also be used as an electron diffraction camera. Two auxiliary sections were fabricated to replace the section of the MESEM-40 microscope that contains the objective, intermediate, and projection lenses. One auxiliary section is inclined and contains the condensing lens for work with electron reflection. The other auxiliary section contains the specimen holder, the mechanism for controlling the motion of the

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slit, the objective, and the analyzer lens. The accelerating potential can be continuously varied; its maximum value is 40 KV. The microscope can produce light field, dark field, and stereoscopic images at magnifications from 3000 to 11 000 and with a resolution of 40-50 Å. The energy resolution of the analyzer is 0.5-0.7 eV. The electron microscope images, electron diffraction patterns, and electron energy spectra are recorded photographically. Orig. art. has: 1 figure.

SUB CODE: 20/ SUBM DATE: 00/ ORIG REF: 002/ OTH REF: 003

Card 212 MLP

MANDEL'SHTAM, S.L.; VASIL'YEV, B.N.; VORON'KO, Yu.K.; TINDO, I.P.; SHURYGIN, A.I.; FETISOV, E.N.

"Of the short-wavelength end of the sun spectrum by means of satellites and rockets."

Report presented at the Spectroscopicum, 11th Intl. Colloq.,
Belgrade, Yug, 30 Sep - 4 Oct 63. *Bellog*.

KANAYEV, A.A., kandidat tekhnicheskikh nauk, redaktor; BARSHTEIN,
I.K., kandidat tekhnicheskikh nauk, nauchny redaktor; PETISOV,
F.I., svedmyushchiy redaktsiyey, inzhener; DUGOKAISKII,
Ye.A., tekhnicheskiy redaktor.

Computation and design standards for coal pulverizing machinery.
[Trudy] TekTI 24:3-275 '52. (MIRA 8:2)
(Coal, Pulverized)

PAVLOV, Ya.M., kandidat tekhnicheskikh nauk, dotsent; ITSKOVICH, G.M.,
inzhener, retsentsent; POLYAKOV, V.S., kandidat tekhnicheskikh
nauk, redaktor; FETISOV, P.I., inzhener, redaktor.

[Machine parts] Detali mashin. Moskva, Gos. nauchno-tekhn. izd-vo
mashinostreitel'noi i sudostroitel'noi lit-ry. Moskva, 1954.
480 p.

(MLRA 7:7)

1. Leningradskoye otdeleniye Mashgiz. Zaveduyushchiy redaktsiy
(for Fetisov)
(Machinery)

FETISOV, G. G.

24027 FETISOV, G. G. Osnovopolozhnik agrobiologicheskoy nauki. (K 1⁴-Y Godovshchine so diya smerti I. V. Michurina). Sov. zootekhnika, 1949, No. 3, S. 3-9.

SO: Letopis, No. 32, 1949.

FETISOV, G. G.

Fruit Culture

Good survey textbook ("Fruit and berry orchard in the central zone of the U.S.S.R." P. N. Yakolev and others. Reviewed by G. G. Fetisov). Agrobiologiya, No. 1, 1952.

Kandidat S.-Kh. Nauk.

SO: Monthly List of Russian Accessions, Library of Congress, June 2, 1958, Unclassified

FETISOV, G. G.

G. G. Fetisov, Plodovodstvo i yagodovodstvo [Fruit and Berry Growing], ninth edition, Sel'khozgiz, 29 sheets - tq53.

The previous edition has undergone the following revisions and addendum; recent data on advanced experience; enlarged description of the varieties of fruits and berries. The latest requirements for standardization, regional demarcation, pest control, etc are also included.

The book is intended for the pupils of agricultural middle schools to train kolkhoz leadership cadres. It may be useful to the practical orchardist.

SO: U-6472, 12 Nov 1954

TARASENKO, Mikhail Trofimovich; YETISOV, G.A., redaktor; TAIROVA, V.N.,
redaktor; PLENSTYKINA, Z.D., tekhnicheskij redaktor; ZUBRILINA, Z.P.,
tekhnicheskij redaktor

[Rejuvenation of a variety] Obnovlenie sorta. Moskva, Gos. izd-vo
selkhoz. lit-ry, 1956. 206 p. (MLRA 9:11)
(Fruit culture)

FETISOV, G.G.; OSTAPENKO, V.I.

Use of the preparation ASD in fruit culture. Biul.nauch.-tekh.
inform.TSGL no.1:23-26 '56. (MIRA 12:1)
(Tissue extracts) (Fruit culture)

KAMSHILOV, N.A.; ANTONOV, M.V.; BAKHAREV, A.N.; BLINOV, L.F.; BORISOGLEBSKIY,
A.D.; GAR, K.A.; GARINA, K.P.; GORSHIN, P.F.; GUTIYEV, G.T.;
DELITSINA, A.V.; DUBROVA, P.F.; YEVETUSHENKO, A.F.; YEGOROV, V.I.;
YEREMENKO, L.L.; YEFINOV, V.A.; ZHILITSKIY, Ya.Z.; ZHUCHKOV, N.G.,
prof.; ZAYETS, V.K.; ISKOL'DSKAYA, R.B.; KOLESNIKOV, V.A., prof.;
KOLESNIKOV, Ye.V.; KOSTINA, K.F.; KHUGLOVA, V.A.; LEONT'YEVA, M.N.;
LESYUK, Ye.A.; MUKHIN, Ye.N.; NAZARYAN, Ye.A.; NEGRUL', A.M., prof.;
ODITSOV, V.A.; OSTAPENKO, V.I.; PETRUSEVICH, P.S.; PROSTOSERDOV,
N.N., prof.; RUKAVISHNIKOV, B.I.; RYABOV, I.N.; SABUROV, N.V.;
SABUROVA, T.N.; SAVZDARG, V.E.; SEMIN, V.S.; SIMONOVA, M.N.;
SMOLYANINOVA, N.K.; SOBOLEVA, V.P.; TARASENKO, M.T.; FETISOV, G.G.;
CHIZHOV, S.T.; CHUGUNIN, Ya.V., prof.; YAZVITSKIY, M.N.;
ROSSOSHCHANSKAYA, V.A., red.; BALLOD, A.I., tekhn.red.

[Fruitgrower's dictionary and handbook] Slovar'-spravochnik
sadovoda. Moskva, Gos.izd-vo sel'khoz.lit-ry, 1957. 639 p.
(MIRA 11:1)

(Fruit culture--Dictionaries)

FETISOV, G.G., kandidat sel'skokhozyaystvennykh nauk.

Valuable book for publicizers of Michurin's teachings ("Ivan Vladimirovich Michurin, the great transformer of nature", by Kh.K. Enikeev. Reviewed by G.G. Fetisov. Agrobiologija no.1:156-157 Ja-F '57. (Michurin, Ivan Vladimirovich, 1855-1935) (Enikeev, Kh.K.) (MIRA 10:4)

FETISOV, G.G.; KRYUKOVA, N.S.

Changes in the physiological properties of pollen in some apple varieties. Nauch. dokl. vys. shkoly; biol. nauki no.1:120-122 '60.
(MIRA 13:2)

1. Rekomendovana Botanicheskim sadom Moskovskogo gosudarstvennogo universiteta im. M.V. Lomonosova.
(Apple) (Pollen)

PETISOV, G.G.; FILIMONOVA, G.A.

Effectiveness of artificial pollination of fruit trees in
relation to various methods of bud castration. Agrobiologiya
no. 3:463 My-Je '60. (MIRA 13:12)

1. Moskovskiy gosudarstvennyy universitet imeni M.V.
Lomonosova, kafedra genetiki i selektsii.
(Fruit trees) (Fertilization of plants)

FETISOV, G.G.; FILIMONOVA, G.A.

Nature and the degree of lower bud damages by low temperatures in
stone fruits. Agrobiologiya no.3:377-382 My-Je '62.
(MIRA 15:10)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova,
kafedra genetiki i selektsii.
(STONE FRUIT) (PLANTS--FROST RESISTNANCE)

FETISOV, G.G.; FILIMONOVA, G.A.

Application of the method of artificial freezing of the
cherry flower buds in the study of their frost resistance.
Vest. Mosk un. Ser. Biol., pochv. 19 no.2:64-72 Mr-Ap '64.
(MIRA 17:9)

1. Botanicheskiy sad Moskovskogo universiteta.

24(3)

AUTHOR:

Fetisov, I. K.

SOV/56-36-4-23/70

TITLE:

A Wall Probe in a Magnetic Field (Stenochnyy zond
v magnitnom pole)

PERIODICAL:

Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959,
Vol 36, Nr 4, pp 1110-1118 (USSR)

ABSTRACT:

Spivak and Reykhrudel' (Ref 1) gave a generalization of the Langmuir theory of probe measurements in the case of weak magnetic fields (~ 10 Oe). In the present paper the author investigates current measurements by means of a wall probe in strong (~ 1000 Oe) magnetic fields. The paper consists of two parts. In the first, probe measurements in a compensated ion beam are dealt with, and the second deals with probe measurements in the plasma of a gas discharge. Calculations are based on the following assumptions: Between two conductive planes a quasineutral plasma is assumed to be located, which is formed by the ionization of the residual gas by fast ions. The H-direction is assumed to be vertical to the conductive planes (= z-direction). The ion

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SOV/56-36-4-23/70

A Wall Probe in a Magnetic Field

current density is assumed to be constant with respect to z . Vertically to H , the plasma is assumed to be unlimited. The disk-shaped probe is assumed to be in one of the planes (i. e. vertical to H) (Fig 1). By basing upon these geometrically given conditions, a formula for the current J on to the probe is first derived. Calculations are followed step by step.

$$\text{The final formula is } J - J_0 = -2\pi n D l \frac{x_0}{T} \frac{dx}{dx} \Big|_{x=x_0}$$

(J_0 is the current on to the probe if the probe potential is zero, n is the electron concentration, which is equal to the concentration of the fast ions, l - the distance between the conductive planes, T - the electron temperature in v , $x = kr$, $x_0 = kr_0$, r_0 the probe radius, $k^2 = j_z^0/nDl$, j_z^0 denotes electron current density on the probe). For the case in which the probe potential U_s is low, one obtains

$$J - J_0 = \pi n D l k r_0 U_s / T \text{ in the case of great } kr_0, \text{ i. e.}$$

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A Wall Probe in a Magnetic Field

SOV/56-36-4-23/70

in the case of great kr_o , the current to the probe is proportional to the probe radius, and in the case of small kr_o it is proportional to the square of the probe radius. In general it holds that $J - J_o = 0.4\pi n D l j$. In the second part of the paper conditions are investigated for the limiting case in which the concentration of the slow ions is high compared to that of fast ions. The plasma is assumed to consist of electrons of the temperature T and slow ions of the temperature T_+ , where it is assumed that $T_+ \ll T$. The slow ions are assumed to be formed by ionization of the residual gas by an external source, by fast ions or electrons, or else by the re-charge of ions. In this case the variation of the plasma potential U_o in the case of variation of the probe potential is limited by a quantity of the smallness of T_+ . U_o may be considered to be invariable. By basing on these assumptions, the electron current to the probe is investigated first for

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A Wall Probe in a Magnetic Field

SOV/56-36-4-23/70

the case in which there is no ionization. Rather complicated formulas are derived for $J_- - J_-^0$. Finally, the current of positive ions to the probe is investigated, and a formula is given for $J_+ - J_+^0$. The author in conclusion thanks O. B. Firsov and A. V. Zharinov for their help and discussions. There are 2 figures and 3 references, 2 of which are Soviet.

SUBMITTED: September 5, 1958

Card 4/4

24 (5), 24 (7)

AUTHORS: Fetisov, I. K., Firsov, O. B.

SOV/56-37-1-14/64

TITLE: The Resonance Charge Exchange of Doubly Charged Ions in Slow
Collisions (Rezonansnaya perezaryadka dvukhzaryadnykh ionov pri
medlennykh stolknoveniyakh)PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 37,
Nr 1(7), pp 95 - 97 (USSR)ABSTRACT: The authors of the present paper calculate the cross-section of
the resonance charge exchange of doubly charged ions in adiaba-
tic approximation, and then they compare the experimental and
theoretical cross sections of the charge exchange of doubly
charged positive ions of A, Kr, Xe, Ne. This problem is reduced
to the calculation of the separation of the electron levels in
the approximation of nuclei. The authors presuppose that with
not very small distances between the atomic nuclei, the differ-
ence $E_a - E_c$ can be calculated by substituting
 $\psi_{c,a} \sim [\psi_A(r_1, r_2) \pm \psi_B(s_1, s_2)] / \sqrt{2}$ for He^{++} . E_a and E_c denote the
energy level of electrons corresponding to the antisymmetric and
symmetric wave functions, respectively. ψ_A and ψ_B denote the

Card 1/3

The Resonance Charge Exchange of Doubly Charged Ions Sov/56-37-1-14/64
in Slow Collisions

wave functions, belonging to helium, of electrons in the ground state if the electrons belong to nucleus A and B, respectively. Formulas for the energy of the electrons are given in first approximation. Most simple helium functions of the type

$C \exp[-\alpha(r_1 + r_2)]$, $\alpha = a_0^{-1}\sqrt{(E_1 + E_2)/2E_0}$ were used as functions φ . $E_1 + E_2$ denote the total energy of the electrons of the atom, E_0 the energy of the electron in the hydrogen atom, a_0 the Bohr radius. The theory discussed in the present paper is suitable for the relative velocities defined by the inequality $v \ll (\alpha e^2/m)^{1/2}$. The results of calculations are illustrated in a diagram. The relative velocity of motion of the nuclei is plotted on the axis of abscissas, $\alpha^2 \sigma$ on the axis of ordinates, σ denoting the cross section of the charge exchange of two electrons. The curve contained in this diagram falls almost linearly downward to the right, only in its initial range it is a little concave upward. The same diagram contains the experimentally measured cross

Card 2/3

The Resonance Charge Exchange of Doubly Charged Ions in SOV/56-37-1-14/64
Slow Collisions

sections of the two-electron charge exchange of the rare gases A, Ne, Kr, Xe. As the one-electron charge exchange proceeds in the same degree by means of the two-electron charge exchange and by means of elastic scattering (which was not considered in the calculation of the cross section), the theoretical curve rather corresponds to the sum $\sigma_{20} + (1/2)\sigma_{21}$, σ_{20} denoting the cross section of the two-electron charge exchange, and σ_{21} the cross section of the one-electron charge exchange. In the second diagram, the experimental results for the case just mentioned are compared with theory. In the authors' opinion, the results found here agree better with the experiment than those found by Gurnee and Magee (Ref 9). There are 2 figures and 11 references, 3 of which are Soviet.

SUBMITTED: December 29, 1958

Card 3/3

YELPIDINSKIY, A.V.; FETISOV, I.N.

Scintillation alpha-detector with a thin window. Prib. i tekh.
eksp. 6 no.1:57-60 Ja-F '61. (MIRA 14:9)
(Alpha rays) (Scintillation counters)

YELPIDINSKIY, A.V.; FETISOV, I.N.

Relationship between the characteristics of a scintillation alpha-particle detector and the granularity of ZnS. Prib. i tekhn. eksp. 6 no.4:52-57 Jl-Ag '61. (MIRA 14:9)

1. Fizicheskiy institut AN SSSR.
(Scintillation counters)

27.2400

400 50

24.6730

S/089/62/013/002/003/011
B102/B104

AUTHORS: Yelpidinskiy, A. V., Fetisov, I. N.

TITLE: The photoneutron yield and shielding problems of high-energy cyclic electron accelerators

PERIODICAL: Atomnaya energiya, v. 13, no. 2, 1962, 140-144

TEXT: The giant-resonance photoneutron yield of various metals in absorptions of electrons with more than 30 Mev was calculated. The yield Q is obtained from the photon equilibrium spectrum $\Gamma_{ph}(E, E_0)$ of primary electrons with E_0 from the relation

$$Q = N n t_o \int_{E_n}^{E_0} \sigma_{ph}(E) \Gamma_{ph}(E, E_0) dE$$

where N is the number of absorbed electrons, n the number of nuclei per cm^3 of the absorber, t_o the radiation length, E_n the (γ, n) threshold energy, σ_{ph} the total photoneutron production cross section. An approximation,

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S/089/62/013/002/003/011
B102/B104

The photoneutron yield and ...

sufficient for calculating the shielding, gives $Q = 1.5 \cdot 10^{-4} N E_0 \text{ sec}^{-1}$ for an averaged neutron yield. This relation holds for any $E_0 \geq 30 \text{ Mev}$ (E_0 is the electron energy at the end of the acceleration cycle in Mev and N is the number of electrons accelerated during one second. In most cases all neutrons can be assumed to have formed either in the acceleration material or in the shield. If, furthermore, the dimensions of the apparatus are so chosen that the accelerator can be regarded as a point source, then a value of $h = 36 \log(NE_0/R^2) - 340 [\text{cm}]$ is obtained for the smallest

necessary shield thickness if the shield consists of ordinary concrete, R being the distance [m] of the external shield wall from the accelerator. This thickness guarantees a neutron flux weakening to $3 \text{ n/cm}^2 \text{ sec}$. The corrections for the finite dimensions of the accelerator can be made by the usual formulas. These estimates of shield thickness take no account of the neutrons due to bremsstrahlung. This kind of neutron radiation, however, depends considerably on the shield structure. It constitutes a local hazard greater than primary bremsstrahlung only when the concrete shield contains additional layers heavy metal ($> 15 \text{ cm Pb or } 35 \text{ cm Fe}$).

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s/089/62/013/002/003/011
B102/B104

The photoneutron yield and ...

In this case $\eta \lesssim 1$, otherwise $\eta \approx 2 \cdot 10^{-3}$ (η is the ratio between neutron radiation hazard and primary bremsstrahlung hazard). There is 1 table.

SUBMITTED: June 29, 1961

Card 3/3

SLAVATINSKIY, S.A.; FETISOV, I.N.

Cross sections of the generation of K^0 -mesons and hyperons
at energies of hundreds of Bev. Izv. AN SSSR. Ser. fiz. 28
no.11:1758-1760 N '64. (MERA 17:12)

1. Fizicheskiy institut im. P.N. Lebedeva AN SSSR.

ACC NR: AP7007076

SOURCE CODE: UR/0048/66/030/010/1577/4580

AUTHORS: Denisov, Ye. V.; Dedenko, L. G.; Dubrovina, S. A.; Kotel'nikov, K. A.; Morozov, A. Ye.; Ogurtsov, O. F.; Sokolovskiy, V. V; Slavatinskly, S. A.; Fetisov, I. N.

ORG: Physics Institute im. P. P. Lebedev, AN SSSR (Fizicheskiy Institut
AN SSSR).

TITLE: Nuclear cascade process in an ionization calorimeter [Paper
presented at the All-Union Conference on Cosmic radiation physics, Moscow,
15-20 Nov 1965]

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 30, no. 10, 1966,
1577-1580

TOPIC TAGS: pi meson, calorimeter, proton

SUB CODE: 20

ABSTRACT: Results of the calculation of the nuclear cascade process in an iron absorber were correlated with experimental data obtained on the ionization calorimeter of the Tyan'-Shan' Cosmic Ray Station. It was established that at $E_0 = 300$ Bev approximately 30% of the energy spent being carried away by strongly ionizing particles ("black tracks"), and the rest by protons with an energy of ~ 150 Mev ("grey tracks"). Errors in the measurement of $E_0 = 200$ Bev associated with fluctuations in the recording of strongly ionizing particles amounted to $\sim 12\%$ ($\sim 11\%$ for "black tracks" and $\sim 4\%$ for "grey tracks"). In measurements by means of an ionization calorimeter of the energy transmitted to π^+ mesons, ionization produced by particles originating from nuclear splitting must be considered. The authors thank N. A. Dobrotin and V. S. Mirzin for valuable critical observations. V. G. Ignat'yevaya, Z. G. Yereminaya,

Card 1/2

ACC NR: AP7007076

L. V. Shibayevaya and N. S. Kochurkinaya for processing the experimental
data. Orig. art. has: 2 figures, 2 formulas and 1 table. [JPRS: 39,658]

Card 2/2

FETISOV, K.A.

Effect of mud applications on the excitability of nerves and muscles.
Vop. kur., fizioter. i lech. fiz. kul't. 26 no.5:399-404 S-0 '61.
(MIRA 14:11)

1. Iz kafedry normal'noy fiziologii (zav. - dotsent L.G.Makarov)
Omskogo meditsinskogo instituta imeni M.I.Kalinina.
(MUSCLES--MOTILITY) (NERVES)
(BATHS, MOOR AND MUD)

PETISOV, K.A.

Effect of applications of silt muds from saline lakes on
the restoration of injured peripheral nerves. Vop. kur.,
fizioter. i lech. fiz. kul't. 27 no.5:413-417 S-0'62.
(MIRA 16:9)

1. Iz kafedry normal'noy fiziologii (zav. - dotsent L.G.
Makarov) Omskogo meditsinskogo instituta.
(NERVES, PERIPHERAL WOUNDS AND INJURIES)
(EARTHS, MEDICAL AND SURGICAL USES OF)

FETISOV, K. K.

Fetisov, K. K.

"A study of spring wheat from the high mountainous regions of Georgia under the conditions of the northern European portion of the RSFSR." All-Union Order of Lenin Academy of Agricultural Sciences imeni V. I. Lenin. All-Union Inst of Plant Growing. Moscow, 1956 (Dissertation for the degree of Candidate in Agricultural Sciences)

Knizhnaya letopis
No. 15, 1956. Moscow

FETISOV K.S.

FETISOV, K.S., inzhener, laureat Stalinskoy premii.

Simultaneous work in building blast-furnace plants. Mekh.trud.
rab.9 no.8:28-30 Ag'55. (MLRA 8:10)
(Blast furnaces)

VEKSMAN, A.M., inzhener; FETISOV, K.S., inzhener; SHURGIN, A.A., inzhener.

Construction of precast concrete granaries in the virgin and fallow
lands. Nov.tekh. i pered. op. v stroi. 18 no.1:19-23 Ja '56.
(Omsk Province--Granaries) (MIRA 9:6)

FETISOV, K.S., inzhener.

"Erecting vertical steel storage tanks," V.S. Kornienko.
Reviewed by K.S. Fetisov. Nov.tekh.i pered.op.v stroi.
18 no.8:31-32 Ag. '56.

(MLRA 9:10)

(Tanks) (Kornienko, V.S.)

FETISOV, K.S., inzhener.

Manufacturing precast reinforced concrete elements in the Netherlands.
Nov.tekh.i pered.op.v stroi.19 no.1:25-28 Ja '57. (MLRA 10:2)
(Netherlands--Precast concrete)

FETISOV, K.S., inzh.

Using aluminum alloys in construction. Mont.i spets.rab.v stroi.
22 no.10:1-6 O '60.
(MIRA 13:9)

1. Glavstal'konstruktsiya Minstroya RSFSR,
(Aluminum alloys) (Factories--Design and construction)

FETISOV, K.S., inzh.

"Protecting aluminum alloy construction elements from corrosion."
Ment. i spets. rab. v. stroi. 22 no.12:31 D '60. (MIRA 13:11)
(Corrosion and anticorrosives) (Alluminum alloys)

KORNIYENKO, V.S., inzh.; FETISOV, K.S., inzh.

Assembly of blast heaters from rolled blanks. Mont. i spets.
rab. v stroi. 23 no.12:2-4 D '61. (MIRA 15:2)

1. Proyektnyy institut Promstal'konstruktsiya i Glavstal'
konstruktsiya Minstroya RSFSR.
(Blast furnaces—Equipment and supplies)

FETISOV, K.S., inzh.

Assembly of the steel elements of blast furnaces. Mont. i
spets. rab. v stroi. 24 no.6:7-10 Je '62. (MIRA 15:6)

1. Glavstal'konstruktsiya.
(Blast furnaces) (Steel, Structural)

FETISOV, K.S., inzh.

Assembly of the metal elements of a stadium in Jakarta,
Mont. 1 spets. rab. v stroi. 24 no.10:23-26 '62. (MIRA 15:10)

1. Ministerstvo stroitel'stva RSFSR.
(Jakarta, Indonesia--Stadia)

BONDAR', Yevgeniy Petrovich, inzh.; FETISOV, Konstantin Semenovich,
laureat Gosudarstvennoy premii, inzh.; KALININ, B.P., inzh.,
nauchn. red.; YUDINA, L.A., red.; SHERSTNEVA, N.V., tekhn.
red.

[Assembling reinforced concrete structures] Montazh zhelezo-
betonnykh konstruktsii. Moskva, Gosstroizdat, 1963. 246 p.
(MIRA 17:1)

✓ 55-25

Fetsov, K. V. Ob opredelenii barometricheskoi tendentsii. [On the determination of the barometric tendency.] *Meteorologicheskii Gidrologicheskii Zhurnal*, No. 7:23-28, 1952. fig. 2 tables. DLC
At present many meteorological stations of Central Asia located at heights more than 500 m above sea level calculate the barometric tendency from values reduced to sea level. The author investigated numerous cases of pressure distribution over Turkistan and established that the method of pressure reduction to sea level is inadequate and calculated barometric tendency from reduced values increased the probable error. The error from unreduced values is usually less than 1 mb, but errors from reduced values can reach several millibars.
Subject Heading: 1. Barometric tendency calculation.—N.T.Z.

551.501.42:551.509.312

W.C. 200

FETISOV, K.V.

Local changes in atmospheric pressure caused by local changes in
wind velocity. Trudy Kaz. NIGMI no. 6-101-103 '56. (MIRA 10r9)
(Atmospheric pressure) (Winds)

FETISOV, K.V.

Local winds and pressure in the region of the May-Tyube Meteorological Station. Trudy Sred.-Az. nauch.-issl. gidrometeor. inst.
no.1:169-173 '59. (MIRA 13:8)
(May-Tyube region--Winds) (Atmospheric pressure)

"APPROVED FOR RELEASE: 08/23/2000

CIA-RDP86-00513R000412920016-6

An Experiment on Rapid Production of Steel from Phosphorus Cast Iron
by N. S. Vaidyanathan

18

AE 2c

10

APPROVED FOR RELEASE: 08/23/2000

CIA-RDP86-00513R000412920016-6"

FETISOV, L.S.

Improved model of the SKA blueprinting machine, Vych. i org.tekh.
v strol. i proek. no.1:84-86 '64. (MIRA 18:10)

1. Gosudarstvennyy institut tipovogo i eksperimental'nogo
projektirovaniya i tekhnicheskikh issledovanii Gosstroya SSSR.

FETISOV, L.S.

"Romajor III," a new model of a small offset press. Vych. i org.tekh.
v stroi. i proekt. no.2:97-100 '64. (MIRA 18:10)

1. Gosudarstvennyy institut tipovogo i eksperimental'nogo
proyektirovaniya i tekhnicheskikh issledovaniy Gosstroya SSSR.

FETISOV, L.S.

Recommendations for remodeling the "Stankin" (SKA-1) and the
"Viskhom" (SKM-4) blueprinting machines. Vych. i org.tekh. v
stroi. i proekt. no.3:78-80 '64. (MIRA 18:10)

1. Gosudarstvennyy institut tipovogo i eksperimental'nogo
projektirovaniya i tekhnicheskikh issledovaniy Gosstroya SSSR.

FETISOV, M., kand.med.nauk

Contribution of scientists to agricultural workers. Okhr. truda
i sots. strakh. 6 no.12:10-13 b '63.
(MIRA 17:2)

1. Direktor Saratovskogo nauchno-issledovatel'skogo instituta
sel'skoy gigiyeny.

FETISOV, MAKHAIL IVANOVICH

FETISOV, Makhail Ivanovich

FETISOV, Makhail Ivanovich - Academic degree of Doctor of Philological Sciences, based on his defense, 28 October 1955, in the Council of the Inst of World Literature inem Gor'kiy Acad Sci USSR, of his dissertation entitled: "Literary ties of Russia with Kazakhstan (Thirties-Fifties of the Nineteenth Century)." For the Academic Degree of Doctor of Sciences

SO: Byulleten' Ministerstva Vyshego Obrazovaniya SSSR, List No. 2, 21 January 1956, Decisions of the Higher Certification Commission concerning academic degrees and titles.

FETISOV, M.I.

[Results and perspectives of studies on the hygiene of agricultural work] Itogi i perspektivy issledovani po gигиене sel'skokhoziaistvennogo truda. Moskva, Meditsina, 1964. 10 p. (MIRA 18:7)

"APPROVED FOR RELEASE: 08/23/2000

CIA-RDP86-00513R000412920016-6

LEVSHINA, Ye.S.; FETISOV, M.M.

Design of compensation device for the measurement of generalized mechanical power. Priborostroenie no.1:1-4 Ja '64. (MIRA 17:2)

APPROVED FOR RELEASE: 08/23/2000

CIA-RDP86-00513R000412920016-6"

FETISOV / NOVITSKIY
NOVITSKIY, P.V.; FETISOV, M.M.

A measuring amplifier with an overlapping feedback demodulator.
Izm.tekh.no.4:37-38 Jl-Ag '55. (MIRA 8:10)
(Electric measurements)

Translation from: Referativnyy zhurnal. Mekhanika, 1957, Nr 5, p 117 (USSR) SOV/124-57-5-5846
AUTHOR: Fetisov, M. M.

TITLE: Using Induction-type Pressure Transducers to Measure Transient Pressures (Ispol'zovaniye induktivnykh preobrazovateley dlya izmereniya nestatsionarnykh davleniy)

PERIODICAL: Tr. Leningr. politekhn. in-ta, 1955, Nr 176, pp 214-227

ABSTRACT: The author examines the various methods used in the calculation and design of induction-type pressure transducers. He lists those conditions fulfillment of which will, in his opinion, result in the maximum possible relative sensitivity of one of the most important of the transducer parameters. He indicates those transducer circuit connections which he deems most suitable for finite-resistance loads and for infinite-resistance loads (i. e., for the input of an electron-tube amplifier). Included are design specifications for transducers (with and without amplifiers) intended for measuring variable pressures. A description and schematic diagram are given of the design of one model of a small-size induction-type differential (hybrid-coil) transducer (for use with amplifier). This transducer, having an over-all

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SOV/124-57-5-5846

Using Induction-type Pressure Transducers to Measure Transient Pressures

size of 11 x 9 mm, is capable of measuring extremely low pressures. For example, with a transducer-membrane thickness of 0.03 mm and a starting gap of 0.1 mm, the type-VIII vibrator of an MPO-2 oscilloscope exhibits a full beam deflection at a pressure of only 1.5 mm H₂O. Within a broad range of pressures the calibration curve is linear, and the transducer's operating voltage on an 800-cps power-source current frequency is 12 volts in both coils. Included is a circuit diagram for a pressure-measuring apparatus intended for use with an induction-type transducer without an amplifier; design specifications for a transducer of this type are given also. Depending on the thickness of its membrane, a transducer of this type will measure effectively gas and liquid pressures over the very broad pressure range from 15 mm to 10 m H₂O. For all practical purposes the transducer is quite sufficiently sensitive and its calibration curve may be regarded as linear. In conclusion, the author cites several possible design features that would balance out the effect of a relatively large constant-pressure component of gas and liquid total pressures exhibiting only very small variations. Bibliography: 7 references.

N. A. Preobrazhenskiy

Card 2/2

"APPROVED FOR RELEASE: 08/23/2000

CIA-RDP86-00513R000412920016-6

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000412920016-6"

8(0)

SOV/112-59-4-7314

Translation from: Referativnyy zhurnal. Elektrotehnika, 1959, Nr 4, p.123 (USSR)

AUTHOR: Fetisov, M. M.

TITLE: Some Problems in the Theory of Automatic Instruments With Compensation
of the Nonelectric Quantity Being Measured (Instruments With Inverted
Transducers)

PERIODICAL: Nauchno-tekhn. inform. byul. Leningrad. politekhn. in-t, 1957,
Nr 6, pp 65-80

ABSTRACT: The structure of inverted-transducer instruments and its influence on
measurement errors are considered. A classification table of inverted
transducers with exemplary values of their inherent and temperature errors is
suggested. Principal and functional schemes of some Soviet and foreign
inverted-transducer instruments are presented. It is noted that with an
insufficient stability of the primary transducer (2-4%), the adoption of a
compensating-type measurement of nonelectrical quantity with the use of

Card 1/2

Some Problems in the Theory of Automatic Instruments With Compensation . . .
inverted transducers that have a low error (0.03-0.5%) always brings about a
considerable improvement in accuracy. Bibliography: 13 items.

SOV/112-59-4-7314

A.F.K.

Card 2/2

FETISOV, M. M.

"Grundprinzipien im Aufbau von Kompensographen zur Messung nichtelektrischer Größen"

report presented at the

Intl. Measurements Conference (IMEKO) Budapest, 24-30 November 1958
1960

FETISOV, M. M.

"Design of self-balancing potentiometers for measuring non-electrical quantities" (Section VII)

report submitted for Measurement and Automation, Scientific Society for (Hungarian) Intl. Measurements Conference - Budapest, Hungary, 24-30 Nov 58

FETISOV, M. M.

AUTHOR: Gikis, A. F., Candidate of Technical Sciences, Docent
TITLE: Sov/144-58-9-18/18
Inter-University Scientific Conference on Electric
Measuring Instruments and Technical Means of Automation
(Meshchovskaya nauchnaya konferentsiya po
elektroizmeritel'nym priborom i tekhnicheskim sredstvam
avtomatiki)

PERIODICAL: Vestnik Uchebnykh Zavedeniy, Elektromekhanika,
1958, Nr 9, pp 130-135 (USSR)

ABSTRACT: The conference was held at the Leningradskiy
elektrotekhnicheskiy institut imeni V. I. Ul'yanova
(Zenit) (Leningrad Electro-technical Institute imeni
V. I. Ul'yanov (Lenin)) on November 11-15, 1958. The
representatives of eleven higher teaching establishments
and three research institutes participated and a large
number of specialists of various industrial undertakings
were present.

Assistant M. M. Fetisov (Leningrad Polytechnical Institute)
presented a paper on the "Basic problems of the theory
of automatic electric metering instruments with reverse
transformation for measuring non-electrical magnitudes".
The method is based fundamentally in compensating the
measured non-electrical magnitude with a similar
magnitude produced by means of a transducer.

Professor A. S. Kharchenko (Moscow Lenin Order Power
Institute) presented the paper "Determination of the
dynamic errors of a magneto-electric oscillograph by means
of analogues".

M. F. Suvid (Kiev Polytechnical Institute) presented the
paper "Measurements using magnetic bridges".
In addition to this, three further papers were read on
magnetic measurements.

25(1)

SOV/146-59-1-7/21

AUTHOR:

Fetisov, M.M., Assistant

TITLE:

Principles of Building Instruments for Measuring Nonelectric Magnitudes With Compensation of the Nonelectric Magnitude to Be Measured

PERIODICAL:

Izvestiya vysshikh uchebnykh zavedeniy, Priborostroyeniye, 1959,
Nr 1, pp 47-54 (USSR)

ABSTRACT:

The author reviews the development of electrical instruments for measuring nonelectric magnitudes. He explains briefly the application of inverters for compensation of nonelectric magnitudes to be measured, but does not describe any specific instruments. He describes in more detail an accelerometer for which he received Author's Certificate Nr 113183, dated December 13, 1955, and an instrument for measuring vibration, Author's Certificate Nr 114054, dated June 20, 1957. Finally, he mentions that electrical instruments with compensation of the nonelectric magnitude to be measured were introduced in 1950, but today they already belong to the class of precision measuring instruments

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SOV/146-59-1-7/21

Principles of Building Instruments for Measuring Nonelectric Magnitudes With
Compensation of the Nonelectric Magnitude to Be Measured

There are 5 block diagrams, 2 circuit diagrams, 2 graphs and 3
Soviet references.

ASSOCIATION:

Leningradskiy politekhnicheskiy institut imeni M.I. Kalinina
(Leningrad Polytechnic Institute imeni M.I. Kalinin) ✓

SUBMITTED:

February 14, 1959

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6(2), 9(6) Anisimov, V. I., Engineer SOV/119-59-1-1/15
 AUTHOR: TITLES: The Inter-university Scientific Conference
 on Electrical Measuring Instruments and on the Technical
 Means of Automation (tekhnicheskaya nauchnaya konferentsiya po elektronizatsii i mekhanicheskoi tekhnicheskaiia sredstvam avtomatiki)

PERIODICALS: Prilozheniye, 1959, No. 5, pp. 30-51 (USSR)

ABSTRACT: This Conference was held at the Leningradskiy elektrotehnicheskiy institut iu. V. I. Uljanova (Leningrad) (Leningrad Institute of Electrical Engineering named V. I. Uljanov (Lenin)) in November 1959. It was attended by more than 500 (several) scientists and university students from 100 research institutes, universities, scientific research institutes of the GChN, the GSN (Special Design Office) of Industries and other organisations. More than 30 lectures were delivered in the meetings of this Conference. In opening the conference R. P. Boroditskiy underlined the outstanding importance of automation and of measuring techniques for the development of national economy. M. M. Shamilovskiy gave a lecture reported on "The Trends in the Development of Methods of Radioactive Control of Production Plants" and outlined the extensive possibilities of using radioactive methods in such control.

Ye. G. Shcheglov and S. A. Spetkov reported on a new method of measuring harmonic currents with the help of the nuclear magnetic resonance. M. A. Rosenblat investigated problems of the application of magnetic amplifiers in automation and in measuring technique. A. V. Fataev reported on the present-day state on the prospects of automatic control technique. T. N. Tarpkin investigated some peculiar features of and the prospects offered by automatic pulse systems. The lecture by M. G. Boldirev dealt with problems of stability of discrete automatic systems. V. A. Ushakov discussed the main trends in the development of mathematical analysis of computers and of computers designed for industrial use. The report by T. S. Kryukhin dealt with an electronic analog correlator for the calculation of correlation functions in the investigation of winds in the ionosphere. E. I. Turgenson reported on the most important problems which guarantee both an active and passive freedom from disturbances in discrete selective systems. Far. V. Kiroelskay discussed problems of averaging, differentiation, and balancing of time-dependent functions which can be represented by electric signals. V. P. Skuridin investigated new computing devices with Polarized Relay. A. V. Frake and Ye. M. Pushin reported on instrument transformers for automatic instruments with automatic recording. V. B. Neklyudov and S. N. Kopay-dore reported on a computer "Avtomatskaya centralised control of production" specification. N. N. Patilay discussed fundamental problems of the theory of automatic measuring instruments with linear construction for the measurement of non-electric quantities. Yu. A. Sinyakov dealt with problems of the construction of an ionization chamber with high accuracy. D. I. Malov distinguished a high-precision automatic d. bridge for digital computations. The participants in the Congress listed below discussed the following subjects (which, however, are not given by the exact wording of the titles).
 V. A. Alentsev The planning of measuring elements for

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The Inter-University Scientific Conference on
Electrical Measuring Instruments and on the Technical
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accurate automatic quotient-type meters in digital computations.
B. B. Charchikov. Methods of determining the dynamic errors
of a magnetic oscilloscope by stimulated oscillations.
Problems in measuring electric quantities at ultrahigh frequencies by electrical indicators at sufficiently low powers. L. P. Dolikovskiy. Several types of various unified instruments for the control of bridges and a.c. components in series production. I. L. Stolbov. Some characteristics of induction a.c. meters which can be used in measuring pressure- and liquid level. A. Borodavov. Ultrasonic circuitry of a phase-sensitive commutation indicator. The semi-equilibrium bridge. Yu. A. Skripnik. The instruments with magnetic bridges, which permit a considerable simplification of the design of the apparatus and the electronics used in the measurement of non-electric quantities. V. A. Permin. Method of increasing the sensitivity of oxygen gas analyzers. P. V. Sviridov.
V. V. Pogosyan. Apparatus for measuring vibration quantities. Parameters of main types of nonlinear semiconductor diodes and possibilities of their application to heterodynometry. Development of measuring technique. G. M. Tsvetkov. Semiconductor triodes. Ya. V. Afanasyev. Fe. P. Ushakov. Use of K. A. Sharpen's frequency meter operating according to the pulse-counting principle. F. G. Slobatin and A. Berzinskis. Methods of measuring the magnetic field strength by means of resistors and transducers operating on the Hall effect principle. A resolution was adopted by the closing plenary session of the Conference, which indicates ways of improving and coordinating scientific research and computing techniques.

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~~FETISOV, M.M.~~, assistant

Principles for the construction of instruments for measuring non-electric values with compensation of the measured nonelectric value,
Izv.vys.ucheb.zav.; prib. no.1:47-64 '59. (MIRA 12:11)

1. Leningradskiy politekhnicheskiy institut im. M.I. Kalinina.
(Electric measurements)

9(6)

AUTHORS:

Novitskiy, P. V., Candidate of SOV/119-60-1-6/14
Technical Sciences, Presnyakov, P. D., Engineer,
Fetisov, M. M., Engineer

TITLE:

The Construction of Piezoelectric Accelerometers With
Minimum Lateral Sensitivity

PERIODICAL:

Priborostroyeniye, 1960, Nr 1, pp 15 - 17 (USSR)

ABSTRACT:

A piezoelectric transducer (Fig 1) is theoretically not sensitive to oscillations perpendicular to a symmetry axis, i. e. for oscillations in the direction a_b (Fig 1) it gives no signals. A lateral sensitivity, however, exists due to several causes. As such causes the following are mentioned: Wrong mounting of the accelerometers to the surface of the workpiece, wrong fitting of the piezoelement into the accelerometer, or deformation of the piezoelectric element by the mass 1 (Fig 1). A decrease of the lateral sensitivity of the accelerometer, which is caused by the aforementioned deformation, by fixing the mass 1, was found to be impossible. It was found useful to introduce the piezoelectric element

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The Construction of Piezoelectric Accelerometers
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into the mass 1 according to figure 2a or by the method shown in 2b. As a further means of reducing lateral sensitivity, the authors mention the use of a double-transducer (Fig 3), in which the lateral sensitivity of the two transducers is compensated. A detailed description is given of the transducer developed by E. I. Radion together with the author, which is shown in section in figure 4. This construction makes it possible to adjust the accelerator, so that lateral sensitivity is reduced to a minimum. On the basis of this accelerometer a three-component accelerometer was developed, which does not exhibit the unfavorable properties of similar constructions, as e. g. great weight and unfavorable resonance properties. This accelerometer is shown in figure 6. In this construction the two crystals which are intended to measure lateral acceleration in each case consist of two crystals and are connected in such a manner that the e.m.f. generated by them is mutually compensated. Complete compensation of lateral

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sensitivity is effected by means of a differential condenser connected to the amplifier input. There are 6 figures and 3 Soviet references.

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A005/A001

Translation from: Referativnyy zhurnal, Mashinostroyeniye, 1960, No. 2⁴, p. 259,
133956

AUTHOR: Fetisov, M.M.

TITLE: New Compensating Devices of the Seismic Design for Measuring the
Vibration Parameters

PERIODICAL: Nauchno-tekhn. inform. byul. Leningr. politekhn. in-t, 1959, No. 3,
pp. 21-32

TEXT: The theory is considered of compensating accelerometers and vibrometers based on the operation principle of magnetoelectric inverted converter. The movable part of the accelerometer is a coil in a permanent-magnet field; the magnet is fixed to the device housing. The relative displacements of the magnet and coil evoked by acting acceleration are transformed by the displacement transmitter into changes of voltage, which is supplied to the amplifier input; the output current of the amplifier is supplied to the coil and yields the compensating force by its interaction with the magnetic field. The current in the coil is proportional to the acceleration and measured by an ammeter or is supplied to a

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A005/A001

New Compensating Devices of the Seismic Design for Measuring the Vibration Parameters

vibrator. The inertial mass of the vibrometer for subsonic frequencies is a magnet in the field of which is a coil fixed to the housing. A secondary inertial mass of the undercompensation converter is suspended on the magnet by means of springs; this converter is used for the conversion of that acceleration into voltage, which acts upon the mass at the device housing vibrations; this voltage is supplied to the amplifier input. The amplifier output current gets into the coil and originates a force, which seeks to keep the magnet with the secondary mass, connected to it, immovable in space. If the amplification factor is sufficiently great, the measured displacement is compensated by the travel of the movable part of the inverted converter; the latter keeps its position in space invariable with high accuracy. The amplitude and the shape of the vibrations are determined by recording the current in the coil. The circuitry, the generalized frequency characteristics of the compensating accelerometer and the vibrometer are presented, and their inaccuracies are considered.

S.I.I.

Translator's note: This is the full translation of the original Russian abstract.

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SIRAMKOV, Ye.G.; NOVITSKIY, P.V.; FETISOV, M.M.; ZORIN, D.I.

Concerning the structure and some fundamental characteristics
of present-day electric measuring devices. Elektrichestvo
no.8:20-25 Ag '62. (MIRA 15:7)

1. Leningradskiy politekhnicheskiy institut imeni Kalinina.
(Electric measurements)

FETISOV, M.M.

Method for converting electric circuit parameters to frequency
changes. Izm. tekhn. no.1:32-34 Ja '64.

(MIRA 17:11)

"APPROVED FOR RELEASE: 08/23/2000

CIA-RDP86-00513R000412920016-6

FETISOV, M.M.

Automatic compensating manometer with an inverted converter.
Priborostroenie no. 7:8-10 J1 '64. (MIRA 17:11)

APPROVED FOR RELEASE: 08/23/2000

CIA-RDP86-00513R000412920016-6"

L 28327-66 EWA(h)/EMT(1)

ACC NR: AP6007165

SOURCE CODE: UR/0115/65/000/012/0035/0039
*25**B*AUTHOR: Fetisov, M. M., Kramlevskiy, N. P.

ORG: none

TITLE: Errors of follower-type frequency transducers with square-law circuits

SOURCE: Izmeritel'naya tekhnika, no. 12, 1965, 35-39

TOPIC TAGS: frequency type transducer, electronic circuit, frequency conversion, error minimization

ABSTRACT: The errors associated with a new "follower-type square-law-circuit" electric-parameter-into-frequency transducer (Izm. tekhnika, 1964, no.1) are theoretically evaluated. The errors due to the square-law circuit, conversion, and nonlinearity for both astatic- and static-balancing conditions are evaluated, as are the errors due to loss in the reactive elements of the square-law circuit. Formulas for calculating the component and overall errors are developed. It is hoped that the new transducer might have an overall error of 0.1--%. Orig. art. has: 1 figure and 35 formulas.

SUB CODE: 09 / SUBM DATE: none / ORIG REF: 002

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UDC: 621.372.632.088:62-503